

## **Therapeutic effectiveness in a diabetic population of the Treviso Local Health Authority No. 9: a retrospective observational study.**

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Diabetes mellitus is a complex disease which is rapidly increasing globally. Current treatment consists largely of insulin- and non-insulin type drugs. Among the latter are DPP-4Is, a new family of drugs on the market since 2008. Their glucose-dependent mechanism obviates the risk of hypoglycemia. The present study was designed as a pharmacoepidemiological analysis within the Treviso Local Health Authority No. 9, to evaluate the demographic features of the diabetic population, the prescribed medications, and achievement of therapeutic target after treatment start. This is a retrospective observational study drawing on Territorial Pharmaceutical Service databases as provided by the Treviso Local Health Authority (No. 9), namely those of: the Population Register; related to pharmaceutical prescriptions and laboratory tests for determination of patient blood sugar levels. For the observation of sugar levels the diabetic patient population was subdivided by age (<45 years, 45-70 years, and >70 years) and diabetes type (type 1, type 2 insulin-dependent, type 2 non-insulin-dependent). Drug consumption was expressed using an international parameter, Defined Daily Dose (DDD)/1000ab/die. Archival data collection spanned the period 2002 - 2012. The study enrolled 31,646 diabetic patients. The incident population has increased exponentially over the last eleven years and is female-dominant, with a higher average age (71 years) compared to men (67 years old). The consumption of non-insulin type drugs (metformin, sulfonylureas, DPP-Is etc.) observed in 2012 (31 DDD/1000ab/die) represents a doubling over the last eleven years. Although lower, the consumption of insulin drugs was still on the rise, with 14 DDD/1000ab/die in 2012. Analysis of consumption of DPP-4Is showed a significant increase for all three molecules (sitagliptin, vildagliptin, and saxagliptin), in particular for sitagliptin - 0.9 DDD/1000ab/die in 2012 vs 0.4 in 2011. Laboratory test data showed that about 55% of diabetic patients failed to reach the blood sugar therapeutic target of 126 mg/dl. The majority of entries within this therapeutic failure group were type 1 diabetic patients greater than 70 years old. Diabetic patient numbers, along with consumption of drugs for the treatment of diabetes mellitus, have increased in the last eleven years. Notably, drug treatment did not result in a therapeutic effect, as more than half of the population studied exceeded the therapeutic target threshold set by international guidelines.